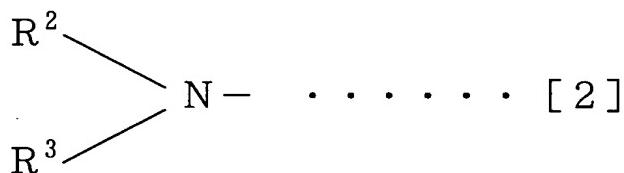
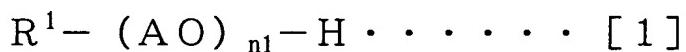


Claims

1. An additive for cement comprising the following component (A).

(A) A polycarboxylic acid series esterified copolymer obtained by esterifying a part or whole of carboxylic acid groups of a polycarboxylic acid series copolymer having a polyoxyalkylene chain with a derivative of an alcohol having a polyoxyalkylene chain and represented by the following formula (1), .



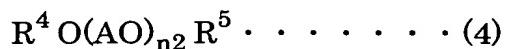
(R^1 represents a group of a heterocyclic ring having a nitrogen atom or a group represented by the above formula (2), R^2 and R^3 represent hydrocarbon groups having 1 to 6 carbon atom(s), respectively and independently, "AO" represents an oxyalkylene group having 2 to 4 carbon atoms, and "n1" represents an average mole number of addition of said oxyalkylene group and 1 to 8)

2. The additive for cement of claim 1, wherein the molecular weight of the polyoxyalkylene site of said polycarboxylic acid series copolymer and the amine value of said component (A) satisfy the following formula (3a).

Molecular weight of polyoxyalkylene site of polycarboxylic acid series copolymer/ amine value of component (A) = 15 to 150 (3a)

3. The additive for cement of claim 1, wherein said polycarboxylic acid series esterified copolymer of said component (A) comprises a copolymer comprising, as essential monomers,

(a) a polyoxyalkylene derivative represented by the following formula (4),



(In the formula, R^4 represents an unsaturated hydrocarbon group having 2 to 8 carbon atoms, R^5 represents hydrogen atom or a saturated hydrocarbon group having 1 to 8 carbon atom(s), "AO" represents an oxyalkylene group having 2 to 4 carbon atoms, and "n2" represents an average mole number of addition of said oxyalkylene group and 10 to 100.), and

(b) an unsaturated polyvalent carboxylic acid series compound.

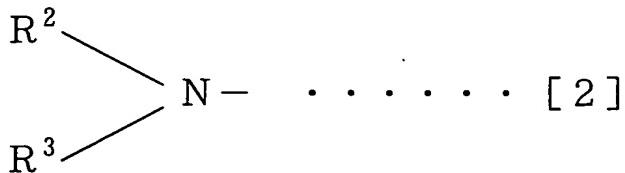
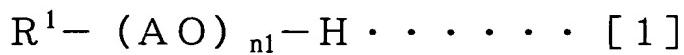
4. The additive for cement of claim 3, wherein R^5 represents hydrogen atom or a saturated hydrocarbon group having 1 to 4 carbon atom(s) and said oxyalkylene group constituting AO comprises an oxyethylene group in a ratio of 50 mole % or more.

5. The additive for cement of claim 3, wherein said unsaturated polyvalent carboxylic acid series compound comprises a maleic acid series compound.

6. An additive composition for cement comprising the additive for cement of claim 1 and the following component (B).

(B) A derivative of an alcohol having polyoxyalkylene and represented by the

following formula (1)



(R^1 represents a group of a heterocyclic ring having a nitrogen atom or a group represented by the above formula (2), R^2 and R^3 represent hydrocarbon groups having 1 to 6 carbon atom(s), respectively and independently, "AO" represents an oxyalkylene group having 2 to 4 carbon atoms, and " $n1$ " represents an average mole number of addition of said oxyalkylene group and 1 to 8)

7. The additive composition for cement of claim 6, wherein the molecular weight of the polyoxyalkylene site of said polycarboxylic acid series copolymer and the amine value of a mixture of said components (A) and (B) satisfy the following formula (3b).

Molecular weight of polyoxyalkylene site of said polycarboxylic acid series copolymer/ amine value of a mixture of said components (A) and (B) = 15 to 150 . . . (3b)

8. The additive composition for cement of claim 6, further comprising the following component (C).

(C) A polycarboxylic acid series copolymer comprising a polyoxyalkylene chain

9. The additive composition for cement of claim 8, wherein the molecular weight of the polyoxyalkylene site of said polycarboxylic acid series copolymer as a material of said component (A) and the amine value of a mixture of said components (A), (B) and (C) satisfy the following formula (3c).

Molecular weight of polyoxyalkylene site of said polycarboxylic acid copolymer as a material of said component (A)/ amine value of a mixture of said components (A), (B) and (C) = 15 to 150 . . . (3c)

10. An additive composition for cement comprising the additive for cement of claim 1 and the following component (C).

(C) A polycarboxylic acid series copolymer comprising a polyoxyalkylene chain

11. The additive composition for cement of claim 10, wherein the molecular weight of the polyoxyalkylene site of said polycarboxylic acid series copolymer as a material of said component (A) and the amine value of a mixture of said components (A) and (C) satisfy the following formula (3d).

Molecular weight of polyoxyalkylene site of polycarboxylic acid series copolymer as a material of said component (A)/ amine value of a mixture of said components (A) and (C) = 15 to 150 . . . (3d)